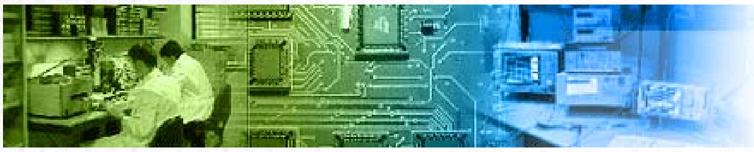


ACORDE TECHNOLOGIES

# X-BAND TRANSCEIVER — Ed.00

## ACTR-X150W High Power Series — 19/02/09

## DESCRIPTION

The ACTR-X series is an integrated transceiver, designed for X-band satellite communication systems. The ACTR-X series is consisting of a RF Block-Up Converter (BUC) and a RF Down Converter. This equipment has been tested and calibrated between -20º and +55ºC, so they assure very good gain stability with temperature. It also includes a temperature alarm and power supply shutdown to protect the amplifier from permanent damages in high temperature conditions. Moreover, ACTR-X series allows RS-232/485 communication with TCP/IP and SNMP as option.

### TRANSMITTER SPECIFICATIONS

Input frequency........ 950 – 1450 MHz (L-Band)
Maximum input level without damage........ +10 dBm
Input impedance........ 50 Ohms
Input L-Band VSWR........ <1.5:1
Output frequency........ 7.9 – 8.4 GHz (X-Band)
Output impedance........ 50 Ohms
Output X-Band VSWR........ <1.3:1
Output coupled sample........ -40 dBc ± 2 dB

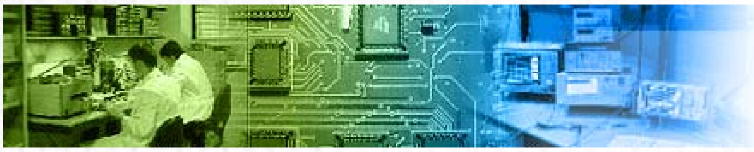
| Transmit Characteristics @ 25ºC | P1dB | Gain | Power Consumption | Size (LxWxH) | Weight |
|---|---|---|---|---|---|
| ACTR-X150W | 51.8 dBm | 70 dB min | ~ 1000 W | 495 x 265 x 255 mm | 25 Kg |

Gain ripple over the whole bandwidth........ ± 1.5 dB
Gain ripple over 40 MHz........ ± 0.75 dB
Gain stability with temperature........ ± 1.5 dB over the whole range
Gain stability (24 Hours)........ < 0.5 dB in a temperature of the range
Attenuation range........ 20 dB, with 0.5 dB steps
Mute........ ≥ 50 dB
Spurious........ < -60 dBc at $P_{OUT}$=P1dB dBm
Harmonics........ < -50 dBc
Mains related spurious........ ≤ -35 dBc
SSB added spurious........ ≤ -41 dBc
Noise figure........ ≤ 15 dB (at maximum gain)
Carrier to intermodulation ratio........ < -25 dBc for 2 tones Δf=5 Mhz $P_{OUT}$ = P1dB - 3 dB

### RECEIVER SPECIFICATIONS

Input frequency........ 7.25 – 7.75 GHz (X-Band)
Input impedance........ 50 Ohms
Input X-Band VSWR........ < 1.5:1
Output frequency........ 950 – 1450 MHz (L-Band)
Output power @ P1dB........ > +5 dBm
Output impedance........ 50 Ohms
Output VSWR (L-Band)........ < 1.5:1
Linear Gain........ 30 ± 1 dB
Gain ripple over the whole band........ ± 1.5 dB
Gain ripple over 40 MHz........ ± 0.75 dB
Gain stability with temperature........ ± 1.5 dB over the whole range
Gain stability (24 Hours)........ ≤ 0.5 dB in a temperature of the range

**ACORDE** • CDTUC, Avda. de los Castros s/n • 39005 Santander • Spain
Phone: +34 942 20 09 23 • Fax: +34 942 29 04 04
Web: www.acorde.com





Attenuation Range .......... 20 dB with 0.5 dB steps
Dependent spurious .......... < -60 dBc @ Pout = -10 dBm
Independent spurious .......... < -60 dBm
Noise figure .......... ≤ 15 dB (at maximum gain)
LNA power supply .......... +15V, 500mA max
LNA alarm .......... current sensing

## LOCAL OSCILLATOR

Local oscillator frequency .......... 6.950 GHz (TX) / 6.3 GHz (RX)
Output phase Noise (IESS-308/309 – 5 dB):
- 100 Hz .......... -65 dBc/Hz
- 1 KHz .......... -75 dBc/Hz
- 10 KHz .......... -85 dBc/Hz
- 100 KHz .......... -95 dBc/Hz
- 1 MHz .......... -105 dBc/Hz

Reference frequency .......... 10 MHz
Reference frequency level .......... 0 dBm ± 3 dB (multiplexed at TX L-Band input connector)
Reference mode .......... External (internal as option)
Reference stability .......... same as external reference
Minimum reference to compliant typical phase noise (IESS-308/309 – 5 dB):
- 100 Hz .......... -130 dBc/Hz
- 1 KHz .......... -140 dBc/Hz
- 10 KHz .......... -145 dBc/Hz

## POWER SUPPLY

AC input voltage .......... 110/220 VAC (47-63 Hz) (48 VDC could be selected as option)

## ENVIRONMENTAL SPECIFICATIONS

Storage temperature .......... -40 to +85°C
Operating temperature .......... -20 to +55°C (-40 to +55°C could be selected as option)
Relative humidity .......... up to 95%
Operating altitude .......... up to 3500m

## MECHANICAL SPECIFICATIONS

Interfaces ..........

| | |
|---|---|
| TX input (L-band + Ext. ref): | Type N(F) 50 ohm |
| RX input (X-band): | Type N(F) 50 ohm |
| Sample Output (X-band): | Type N(F) 50 ohm |
| TX output (X-band): | WR112 CPRG flange |
| RX output (L-band): | Type N(F) 50 ohm |
| Power supply: | MS3112E12-3P |
| Monitoring & Control : | MS3112E12-14S |
| LNA supply : | MS3112E8-4S |

Cooling system .......... Forced air integrated
Finish .......... White RAL 9003 // Caqui M12IR

## OPTIONS

MP1: .......... 48 VDC Power supply
MP2: .......... Internal 10 MHz Reference
MP3: .......... Operating temperature (-40 to +55°C)
MP4: .......... Ethernet interface (TCP/IP)
MP5: .......... SNMP Agent

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